Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled)

2. (Cancelled)

3. (Currently amended) ~~A method according to claim 2,~~ A method of scheduling traffic from a plurality of queues onto a link, at least one of the queues having an agreed bandwidth requirement and at least one of the queues having no agreed bandwidth requirement, the method comprising the steps of:

a) assigning a weight to each queue having an agreed bandwidth requirement, the weight being determined in dependence on the ratio of the queue's required bandwidth to the available link bandwidth, a queue with a low weight being scheduled for transmission before a queue with a higher weight;

b) grouping the queues having no agreed bandwidth requirement into a group, Q*, and assigning a weight to the group; and

c) scheduling the queues for transmission on the link in dependence on their assigned weight and on a last transmission time for the respective queue, wherein if a scheduled queue has no traffic to transmit another queue is scheduled, the group Q* being scheduled after the other queues;

wherein the weight W_N, for a queue, Q_N, is calculated as:

$$W_N = \frac{RL}{RN} xSTEP$$

where a value, STEP, is defined as the lowest assignable weight, R_L is the link bandwidth and R_N is the queue's required bandwidth.

4. (Original) A method according to claim 3, in which the group Q* is assigned a weight of STEP.

5. (Original) A method according to claim 4, in which the step of scheduling queues includes the steps of:

maintaining a global counter, G;

maintaining a counter for each queue, counter C_N being the counter for queue Q_N;

incrementing C_N by the W_N and G by STEP each time a queue, Q_N, is scheduled for transmission and has traffic to transmit, wherein a queue, Q_N, is scheduled for transmission only if $C_N <= G$.

6. (Original) A method according to claim 5, in which the step of scheduling queues further comprises the step of ordering the queues in increasing rank of their respective weights, the group Q* being ordered last, wherein the step of scheduling queues processes the queues in accordance with said order.

7. (Original) A method according to claim 6, further comprising the steps of assigning the global counter, G, a maximum size in bits and determining an end point, U,

$$U = 2^{(\text{max size in bits } -1)}$$

wherein, when G reaches or exceeds the value of U, G is reset to a predetermined value, L, and counters C_N are reset to C_N - (G-L) or 0, whichever is greater.

8. (Original) A method according to claim 7, wherein the predetermined value, L, is set at 2 x STEP.

9. (Original) A method according to claim 7, wherein the maximum usable weight is set at U-STEP.

10. (Cancelled)

11. (Cancelled)

12. (Currently amended) ~~A system according to claim 11, in which~~ A traffic control system comprising a traffic controller arranged to process traffic from a plurality of queue's to schedule the traffic on an outgoing link, the plurality of queues including:

a) at least one queue having an agreed bandwidth requirement and at least one queue having no agreed bandwidth requirement;

b) the traffic controller being arranged to assign a weight to each queue having an agreed bandwidth requirement in dependence on the ratio of the queue's required bandwidth to the available link bandwidth; the traffic controller being arranged

   i) to schedule a queue with a low weight before a queue with a higher weight,

   ii) to group the queues having no agreed bandwidth requirement into a group, Q*, and assign a weight to the group Q*, and

   iii) to schedule the queues for transmission on the link in dependence on their assigned weight and on a last transmission time for the respective queue, wherein, if a scheduled queue has no traffic to transmit another queue is scheduled, the group Q* being scheduled after the other queues;

wherein the weight W_N, for a queue, Q_N, is calculated as:

$$W_N = \frac{RL}{RN} xSTEP$$

wherein a predetermined value, STEP, is stored in a memory as the lowest

assignable weight, and wherein R_L is the link bandwidth and R_N is the queue's required bandwidth.

13. (Original) A system according to claim 12, in which the group Q* is assigned a weight of STEP.

14. (Original) A system according to claim 13, in which the traffic controller schedules traffic from the queues by:

maintaining a global counter, G, in a memory;

maintaining a counter for each queue in a memory, counter C_N being the counter for queue Q_N;

incrementing C_N by the W_N and G by STEP each time a queue, Q_N, is scheduled for transmission and has traffic to transmit, wherein a queue, Q_N, is scheduled for transmission only if $C_N <= G$.

15. (Original) A system according to claim 14, in which the traffic controller is arranged to order the queues in increasing rank of their respective weights, the group Q* being ordered last, wherein the traffic controller processes the queues in accordance with said order.

16. (Original) A system according to claim 15, in which the global counter, G, is stored in a register of length n bits, the controller being arranged to monitor the register for when its value reaches or exceeds a value, U,

where $U = 2^{(n-1)}$

wherein, when G reaches or exceeds the value of U, G is reset to a predetermined value, L, and counters C_N are reset to C_N - (G-L) or 0, whichever is greater.

17. (Original) A system according to claim 16, wherein the predetermined value, L, is set at 2 x STEP.

18. (Currently amended) A ~~method~~ system according to claim 17, wherein the maximum usable weight is set at U-STEP.

19. (Currently amended) A traffic control system according to claim ~~10~~ 12, in which the traffic controller includes a data structure in a memory, the data structure including storage means for a link to each traffic element queued for transmission, an indicator as to the last transmission time for a queue and a schedule for each queue indicating the next transmission time for a queue, the traffic controller scheduling traffic in accordance with the contents of the data structure.

20. (Original) A traffic control system according to claim 19, further comprising a further data structure, the further data structure being a copy of the data structure, wherein upon receiving a further queue to schedule the traffic controller is arranged to recalculate a transmission schedule in the further data structure including the further queue and to then schedule traffic in accordance with the contents of the further data structure.

21. (Original) A traffic control system according to claim 19, in which the traffic controller comprises an Application Specific integrated circuit.

22. (Original) A traffic control system according to claim 19, in which the traffic controller comprises a field programmable gate array.

23. (Currently amended) A computer-readable medium, on which is stored a computer program of instructions for a general purpose computer for scheduling traffic from a plurality of queues onto a link, at least one of the queues having an agreed bandwidth requirement and at least one of the queues having no agreed bandwidth requirement, comprising, in combination:

means for enabling the computer to assign a weight to each queue having an agreed bandwidth requirement, the means determining the weight in dependence on the ~~bandwidth requirement~~ ratio of the queue's required bandwidth to the available link bandwidth;

means for enabling the computer to group the queues having no agreed bandwidth requirement into a group, Q*, and to assign a weight to the group; and

means for enabling the computer to schedule the queues for transmission on the link in dependence on their assigned weight and on a last transmission time for the respective queue, wherein if a scheduled queue has no traffic to transmit the means schedules another queue, the means scheduling the group Q* after the other queues;

wherein the weight W_N, for a queue, Q_N, is calculated as:

$$W_N = \frac{RL}{RN} xSTEP$$

where a predetermined value, STEP, is stored in a memory as the lowest assignable weight, and wherein R_L is the link bandwidth and R_N is the queue's required bandwidth.

24. (Currently amended) A program storage device readable by a machine and encoding a program of instructions for executing the method steps of claim ~~1~~ 3.